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to have engaged in the civil war, or nearly one-seventh of the whole population.

In all the above quoted large numbers and values the figures have been expressed in the nearest thousands, as quite sufficiently accurate for the picture presented by this census of the remarkable progress and material prosperity of the great American nation. These results are, of course, only the summaries of numerous tables. The details are given with much minuteness, and show the vast variety of information as to the condition of a people which a census, if accurately taken, is capable of affording. The Report by Dr. Jarvis, on the mortality statistics, involves some points of such great and curious interest, especially as regards the white and coloured populations, that it may be worth analyzing separately on a future occasion.

A Budget of Paradoxes. By PROFESSOR DE MORGAN.

(Continued from page 188.)

No. XVIII. 1847—1849.

Aerial Navigation; containing a description of a proposed flying machine, on a new principle. By Dædalus Britannicus. London, 1847, 8vo.

In 1842-43 a Mr. Henson had proposed what he called an aeronaut steam-engine, and a Bill was brought in to incorporate an "Aerial Transit Company." The present plan is altogether different, the moving power being the explosion of mixed hydrogen and air. Nothing came of it—not even a Bill. What the final destiny of the balloon may be no one knows: it may reasonably be suspected that difficulties will at last be overcome. Darwin, in his *Botanic Garden* (1781), has the following prophecy:—

"Soon shall thy arm, unconquered Steam! afar
Drag the slow barge, or drive the rapid car;
Or, on wide-waving wings expanded, bear
The flying chariot through the fields of air."

Darwin's contemporaries, no doubt, smiled pity on the poor man. It is worth note that the two true prophecies have been fulfilled in a sense different from that of the predictions. Darwin was thinking of the suggestion of Jonathan Hulls, when he spoke of dragging the slow barge: it is only very recently that the steam-tug has been employed on the canals. The car was to be driven, not drawn, and on the common roads. Perhaps, the flying chariot will be something of a character which we cannot imagine, even with the two prophecies and their fulfilments to help us.

A book for the public. New discovery. The causes of the circulation of the blood; and the true nature of the planetary system. London, 1848, 8vo.

Light is the sustainer of motion both in the earth and in the blood. The natural standard, the pulse of a person in health, four beats to one respiration, gives the natural second, which is the measure of the earth's progress in its daily revolution. The Greek fable of the Titans is an elaborate exposition of the atomic theory: but any attempt to convince learned classics would only meet their derision; so much does long-fostered prejudice stand in the way of truth. The author complains bitterly that men of science will not attend to him and others like him: he observes, that "in the time occupied in declining, a man of science might test the merits." This is, alas! too true; so well do applicants of this kind know how to stick on. But every rule has its exception: I have heard of one. The late Lord Spencer—the Lord Althorp of the House of Commons—told me that a speculator once got access to him at the Home Office, and was proceeding to unfold his way of serving the public. "I do not understand these things," said Lord Althorp, "but I happen to have —— (naming an eminent engineer) upstairs; suppose you talk to him on the subject." The discoverer went up, and in half-an-hour returned, and said, "I am very much obliged to your Lordship for introducing me to Mr. ——; he has convinced me that I am quite wrong." I supposed, when I heard the story—but it would not have been seemly to say it—that Lord A. perspired candour and sense, which infected those who came within reach: he would have done so, if anybody.

A method to trisect a series of angles having relation to each other; also another to trisect any given angle. By James Sabben. 1848. (Two quarto pages.)

"The consequence of years of intense thought": very likely, and very sad.

1848. The following was sent to me in manuscript. I give the whole of it: —

Quadrature of the Circle.—A quadrant is a curvilinear angle traversing round and at an equal distance from a given point, called a centre, no two points in the curve being at the same angle, but irreptitiously graduating from 90 to 60. It is therefore a mean angle of 90 and 60, which is 75, because it is more than 60, and less than 90, approximately from 60 to 90, and from 90 to 60, with equal generation in each irreptitious approximation, therefore meeting in 75, and which is the mean angle of the quadrant.

Or, suppose a line drawn from a given point at 90, and from the same point a line at 60. Let each of these lines revolve on this point toward each other at an equal ratio. They will become one line at 75, and bisect the curve, which is one-sixth of the entire circle. The result, taking 16 as a diameter, gives an area of 201.072400, and a circumference of 50.2681.

The original conception, its natural harmony, and the result, to my own mind is a demonstrative truth, which I presume it right to make known, though perhaps at the hazard of unpleasant if not uncourteous remarks.

I have added punctuation: the handwriting and spelling are those of an educated person; the word *irreptitious* is indubitable. The whole is a natural curiosity.

The quadrature and exact area of the circle demonstrated. By Wm. Peters. 8vo. *n. d.* (circa 1848).

Suggestions as to the necessity for a revolution in philosophy; and prospectus for the establishment of a new quarterly, to be called the *Physical Philosopher and Heterodox Review*. By Q. E. D. 8vo. 1848.

These works are by one author, who also published, as appears by advertisement,

"Newton rescued from the precipitancy of his followers through a century and a half," and "Dangers along a coast by correcting (as it is called) a ship's reckoning by bearings of the land at night fall, or in a fog, nearly out of print. Subscriptions are requested for a new edition."

The area of a circle is made four-fifths of the circumscribed square: proved on an assumption which it is purposed to explain in a longer essay. The author, as Q. E. D., was in controversy with the *Athenæum* journal, and criticized a correspondent, D., who wrote against a certain class of discoverers. He believed the common theories of hydrostatics to be wrong, and one of his questions was—

"Have you ever taken into account anent gravity and gravitation the fact that a five grain cube of cork will of itself half sink in the water, whilst it will take 20 grains of brass, which will sink of itself, to pull under the other half? Fit this if you can, friend D., to your notions of gravity and specific gravity, as applied to the construction of a universal law of gravitation."

This the *Athenæum* published—but without some Italics, for which the editor was sharply reproved, as a sufficient specimen of the *quod erat D. monstrandum*: on which the author remarks—"D,—Wherefore the e caret? is it D apostrophe? D', D'M, D'Mo, D'Monstrandum; we cannot find the *wit* of it." This I conjecture to contain an allusion to the name of the supposed

author ; but whether De Mocritus, De Mosthenes, or De Moivre was intended, I am not willing to decide.

The scriptural Calendar and Chronological Reformer, for the statute year 1849. Including a review of recent publications on the Sabbath question. London, 1849, 12mo.

This is the almanac of a sect of Christians who keep the Jewish Sabbath, having a chapel at Mill Yard, Goodman's Fields. They wrote controversial works, and perhaps do so still ; but I never chanced to see one.

Geometry *versus* Algebra; or the trisection of an angle geometrically solved. By W. Upton, B.A. Bath (circa 1849). 8vo.

The author published two tracts under this title, containing different alleged proofs : but neither gives any notice of the change. Both contain the same preface, complaining of the British Association for refusing to examine the production. I suppose that the author, finding his first proof wrong, invented the second, of which the Association never had the offer ; and feeling sure that they would have equally refused to examine the second, thought it justifiable to present that second as the one they had refused. Mr. Upton has discovered that the common way of finding the circumference is wrong, would set it right if he had leisure, and, in the meantime, has solved the problem of the duplication of the cube.

The trisector of an angle, if he demand attention from any mathematician, is bound to produce, from his construction, an expression for the sine or cosine of the third part of any angle, in terms of the sine or cosine of the angle itself, obtained by help of no higher than the square root. The mathematician knows that such a thing cannot be ; but the trisector virtually says it can be, and is bound to produce it, to save time. This is the misfortune of most of the solvers of the celebrated problems, that they have not knowledge enough to present those consequences of their results by which they can be easily judged. Sometimes they have the knowledge, and quibble out of the use of it. In many cases a person makes an honest beginning and presents what he is sure is a solution. By conference with others he at last feels uneasy, fears the light, and puts self-love in the way of it. Dishonesty sometimes follows. The speculators are, as a class, very apt to imagine that the mathematicians are in fraudulent confederacy against them : I ought rather to say that each one of them consents to the mode in which the rest are treated, and fancies conspiracy against

himself. The mania of conspiracy is a very curious subject. I do not mean these remarks to apply to the author before me.

One of Mr. Upton's trisections, if true, would prove the truth of the following equation :—

$$3 \cos \frac{\theta}{3} = 1 + \sqrt{4 - \sin^2 \theta},$$

which is certainly false.

In 1852 I examined a terrific construction, at the request of the late Dr. Wallich, who was anxious to persuade a poor countryman of his that trisection of the angle was waste of time. One of the principles was, that "magnitude and direction determine each other." The construction was equivalent to the assertion that, θ being any angle, the cosine of its third part is

$$\sin 3\theta \cdot \cos \frac{5\theta}{2} + \sin^2 \theta \sin \frac{5\theta}{2}$$

divided by the square root of

$$\sin^2 3\theta \cos \frac{25\theta}{2} + \sin^4 \theta + \sin 3\theta \cdot \sin 5\theta \cdot \sin^2 \theta.$$

This is from my rough notes, and I believe it is correct. It is so nearly true, unless the angle be very obtuse, that common drawing, applied to the construction, will not detect the error. There are many formulæ of this kind: and I have several times found a speculator who has discovered the corresponding construction, has seen the approximate success of his drawing—often as great as absolute truth could give in graphical practice—and has then set about his demonstration, in which he always succeeds to his own content.

There is a trisection of which I have lost both cutting and reference: I think it is in the *United Service Journal*. I could not detect any error in it, though certain there must be one. At least I discovered that two parts of the diagram were incompatible unless a certain point lay in line with two others, by which the angle to be trisected—and which was trisected—was bound to be either 0° or 180° .

No. XIX. 1849—1850.

Notes on the Kinematic effects of Revolution and Rotation, with reference to the Motions of the Moon and of the earth. By Henry Perigal, Jun., Esq. London, 1846–1849, 8vo.

On the misuse of technical terms. Ambiguity of the terms *Rotation* and *Revolution*, owing to the double meaning improperly attributed to each of the words. (No date nor place, but by Mr. Perigal, I have no doubt, and containing letters of 1849 and 1850.)

The moon controversy. *Facts v. Definitions.* By H. P., Jun. London, 1856, 8vo. (pp. 4.)

Mr. Henry Perigal helped me twenty years ago with the diagrams, direct from the lathe to the wood, for the article "Trochoidal Curves," in the *Penny Cyclopædia*: these cuts add very greatly to the value of the article, which, indeed, could not have been made intelligible without them. He has had many years' experience, as an amateur turner, in combination of double and triple circular motions, and has published valuable diagrams in profusion. A person to whom the double circular motion is familiar in the lathe naturally looks upon one circle moving upon another as in *simple* motion, if the second circle be fixed to the revolving radius, so that one and the same point of the moving circle travels upon the fixed circle. Mr. Perigal commenced his attack upon the moon for moving about her axis, in the first of the tracts above, ten years before Mr. Jellinger Symons; but he did not think it necessary to make it a subject for the *Times* newspaper. His familiarity with combined motions enabled him to handle his arguments much better than Mr. J. Symons could do: in fact, he is the clearest assailant of the lot which turned out with Mr. J. Symons. But he is as wrong as the rest. The assault is now, I suppose, abandoned, until it becomes epidemic again. This it will do: it is one of those fallacies which are very tempting. There was a dispute on the subject in 1748, between James Ferguson and an anonymous opponent; and I think there have been others.

A poet appeared in the field (July 19, 1863) who calls himself Cyclops, and writes four octavo pages. He makes a distinction between *rotation* and *revolution*; and his doctrines and phrases are so like those of Mr. Perigal, that he is a follower, at least. One of his arguments has so often been used that it is worth while to cite it:—

Would Mathematics—forsooth—
If true, have failed to prove its truth?
Would not they—if they could—submit
Some overwhelming proofs of it?
But still it totters *proofless*! Hence
There's strong presumptive evidence
None do—or can—such proof propound
Because *the dogma is unsound*.
For, were there means of doing so,
They would have proved it long ago.

This is only one of the alternatives. Proof requires a person who can give and a person who can receive. I feel inspired to add the following :—

A blind man said, As to the Sun,
I'll take my Bible oath there's none;
For if there had been one to show
They would have shown it long ago.
How came he such a goose to be?
Did he not know he could'nt see?
Not he!

The solar system truly solved; demonstrating, by the perfect harmony of the planets, founded on the four universal laws, the Sun to be an electrical space; and a source of every natural production displayed throughout the solar system. By James Hopkins. London, 1849, 8vo.

The author says :—

“I am satisfied that I have given the true *laws* constituting the *Sun* to be *space*; and I call upon those disposed to maintain the contrary, to give true *laws* showing him to be a body: until such can be satisfactorily established, I have an undoubted claim to the credit of my theory,—That the Sun is an *Electric Space*, fed and governed by the planets, which have the property of attracting heat from it; and the means of supplying the necessary *pabulum* by their degenerated air driven off towards the central space—the wonderful alembic in which it becomes transmuted to the revivifying necessities of continuous action; and the central space or Sun being perfectly electric, has the counter property of repulsing the bodies that attract it. How wonderful a conception! How beautiful, how magnificent an arrangement!

“O Centre! O Space! O Electric Space!”

1849. *Joseph Ady* is entitled to a place in this list of discoverers: his great fault, like that of some others, lay in pushing his method too far. He began by detecting unclaimed dividends, and disclosing them to their right owners, exacting his fee before he made his communication. He then generalized into trying to get fees from all of the *name* belonging to a dividend; and he gave mysterious hints of dangers impending. For instance, he would write to a clergyman that a legal penalty was hanging over him; and when the alarmed divine forwarded the sum required for disclosure, he was favoured with an extract from some old statute or canon, never repealed, forbidding a clergyman to be a member of a Corporation, and was reminded that he had insured his life in the — Office, which had a royal charter. He was facetious, was Joseph: he described himself in his circulars as “personally known to Sir Peter Laurie and all other aldermen”; which was nearly true, as he had been before most of them on charges of false pretence;

but I believe he was nearly always within the law. Sir James Duke, when Lord Mayor, having particularly displeased him by a decision, his circulars of 1849 contain the following :—

“Should you have cause to complain of any party, Sir J. Duke has contrived a new law of evidence, viz., write to him, he will consider your letter sufficient proof, and make the parties complained of pay without judge or jury, and will frank you from every expense.”

I strongly suspect that Joseph Ady believed in himself.

He sometimes issued a second warning, of a Sibylline character :—

“Should you find cause to complain of anybody, my voluntary referee, the Rt. Hon. Sir Peter Laurie, Kt., perpetual Deputy Lord Mayor, will see justice done you without any charge whatever: he and his toady, — — —. The accursed of Moses can hang any man: thus, by catching him alone and swearing Naboth spake evil against God and the King. Therefore (!) I admit no strangers to a personal conference without a prepayment of 20s. each. Had you attended to my former notice you would have received twice as much: neglect this and you will lose all.”

Zadkiel's Almanac for 1849. Nineteenth number.

Raphael's Prophetic Almanac for 1849. Twenty-ninth number.

Reasons for belief in judicial astrology, and remarks on the dangerous character of popish priestcraft. London, 1849, 12mo.

Astronomy in a nutshell: or the leading problems of the solar system solved by simple proportion only, on the theory of magnetic attraction. By Lieut. Morrison, R.N. London (s. a.) 12mo.

Lieut. Morrison is Zadkiel Tao Sze, and declares himself in real earnest an astrologer. There are a great many books on astrology, but I have not felt interest enough to preserve many of them which have come in my way. If anything ever had a fair trial, it was astrology. The idea itself is natural enough. A human being, set down on this earth, without any tradition, would probably suspect that the heavenly bodies had something to do with the guidance of affairs. I think that any one who tries will ascertain that the planets do not prophesy: but if he should find to the contrary, he will of course go on asking. A great many persons class together belief in astrology and belief in apparitions: the two things differ in precisely the way in which a science of observation differs from a science of experiment. Many make the mistake which M. le Marquis made when he came too late, and hoped M. Cassini would do the eclipse over again for his ladies. The apparition chooses its own time, and comes as seldom or as often as it pleases, be it departed spirit, nervous derangement, or imposition. Consequently it can only be observed, and not expe-

rimented upon. But the heavens, if astrology be true, are prophesying away day and night all the year round, and about every body. Experiments can be made, then, except only on rare phenomena, such as eclipses: anybody may choose his time and his question. This is the great difference: and experiments were made, century after century. If astrology had been true, it must have lasted in an ever-improving state. If it be true, it is a truth, and a useful truth, which had experience and prejudice both in its favour, and yet lost ground as soon as astronomy, its working tool, began to improve.

1850. A letter in the handwriting of an educated man, dated from a street in which it must be taken that educated persons live, is addressed to the Secretary of the Astronomical Society about a matter on which the writer says "his professional pursuit will enable him to give a satisfactory reply" In a question before a court of law it is sworn on one side that the moon was shining at a certain hour of a certain night on a certain spot in London; on the other side it is affirmed that she was clouded. The Secretary is requested to decide. This is curious, as the question is not astrological. Persons still send to Greenwich, now and then, to have their fortunes told. In one case, not very many years ago, a young gentleman begged to know who his wife was to be, and what fee he was to remit.

Sometimes the astronomer turns conjuror for fun, and his prophecies are fulfilled. It is related of Flamsteed that an old woman came to know the whereabouts of a bundle of linen which had strayed. Flamsteed drew a circle, put a square into it, and gravely pointed out a ditch, near her cottage, in which he said it would be found. He meant to have given the woman a little good advice when she came back: but she came back in great delight, with the bundle in her hand, found in the very place. The late Baron Zach received a letter from Pons, a successful finder of comets, complaining that for a certain period he had found no comets, though he had searched diligently. Zach, a man of much sly humour, told him that no spots had been seen on the sun for about the same time—which was true,—and assured him that when the spots came back, the comets would come with them. Some time after he got a letter from Pons, who informed him with great satisfaction that he was quite right, that very large spots had appeared on the sun, and that he had found a fine comet shortly after. I do not vouch for the first story, but I have the second in Zach's handwriting. It would mend the joke exceedingly if some day a

real relation should be established between comets and solar spots: of late years good reason has been shown for advancing a connexion between these spots and the earth's magnetism. If the two things had been put to Zach, he would probably have chosen the comets. Here is a hint for a paradox: the solar spots are the dead comets, which have parted with their light and heat to feed the sun, as was once suggested. I should not wonder if I were too late, and the thing had been actually maintained. My list does not contain the twentieth part of the possible whole.

April 1850, found in the letter-box, three loose leaves, well printed, and over punctuated, being

Chapter VI. Brethren, lo I come, holding forth the world of life, for so I am commanded. . . . Chapter VII. Hear my prayer, O generations! and walk by the way, to drink the waters of the river. . . . Chapter VIII. Hearken o earth, earth, earth, and the kings of the earth, and their armies. . . .

A very large collection might be made of such apostolic writings. They go on well enough in a misty—meant for mystical—imitation of St. Paul or the prophets, until at last some prodigious want of keeping shows the education of the writer. For example, after half a page which might pass for Irving's preaching—though a person to whom it was presented as such would say that most likely the head and tail would make something more like head and tail of it—we are astounded by a declaration from the *Holy Spirit*, speaking of himself, that he is “not ashamed of the Gospel of Christ.” It would be long before we should find in *educated* rhapsody—of which there are specimens enough—such a thing as a person of the Trinity taking merit for moral courage enough to stand where St. Peter fell. The following declaration comes next—“I will judge between cattle and cattle, that use their tongues.”

The figure of the earth. By J. L. Murphy, of Birmingham. (London and Birmingham, 4 pages, 12mo.) (1850?)

Mr. Murphy invites attention and objection to some assertions, as that the earth is prolate not oblate. “If the philosopher's conclusion be right, then the pole is the centre of a valley (!) thirteen miles deep.” Hence it would be very warm. It is answer enough to ask—Who knows that it is not?

*History of the signs + and —.**

Sept. 9, 1864.

I have just traced out a curious point connected with this subject, which, so far as I have read, is wholly unknown to mathematicians. I here give a slight sketch, reserving proofs and authorities for a more appropriate channel of publication.† The sign + is read *plus*, which means *more*; and — is read *minus*, which means *less*. The algebraical language $6 + 3$, six *more* three, for 9, and $12 - 7$, twelve *less* seven, for 5, seems rather forced. It was not so at the outset; + was not a sign of junction, but a memorandum of *more* arrived at than was wanted; and — was the corresponding memorandum of *less*. These memoranda were used in the rule of false position, or *regula falsi* as it was called. In this rule a question is solved, if it lead to a simple equation, by assuming two numbers for the answer, and trying what errors they give: the assumed numbers and the errors they give are made to determine the true answer. But an assumed number may give too much, or too little; and a slight difference of final process depends upon whether both assumed numbers give too much or too little, or else one too much and the other too little. A great many writers made their note of the cases, as they arose, by the letters *p* and *m*, some by *plus* and *minus* at length, or by *piu* and *meno*. Some few Germans used the marks + and —, which may be conjectured to be nothing but the simplest way of making two marks denote *more*, and one mark denote *less*. To conjecture we must probably be reduced: for the first use I have as yet found of the signs has no explanation, and is of 1489. I find it again in 1525 and in 1527: and intermediate instances will probably turn up; the mode of expression continued in use, more or less, until the end of the century. Accordingly, the first meaning of $7 + 5$ was “The assumption of 5 gives 7 too much.”

The latest historical writers give the invention of + and — to Christopher Rudolf, whose first edition is of 1522 or 1524; some say 1526: I have a suspicion that it was never *printed*. This first edition is now quite unknown. There is a Latin translation (MSS. 365. m. 4; another reference is No. 7,365 of the Latin Manuscripts, 4to.) of 1540 in the Imperial Library at Paris, about which those who describe it do not speak distinctly as to its containing the use of + and — which we make. I suppose they mean to imply the affirmative: but there is this point of doubt. Michael Stifelius—those who wish to delatinize him may choose between

* Though this letter did not form part of the series, yet as it gives some account of a conspicuous paradox, and also illustrates the history of algebra, we have inserted it here.

† See *Transactions of the Cambridge Philosophical Society*, vol. xi., part 1.

Stifel, Stiefel, Stiffel, and Stifels, or may invent a fifth choice—published a second edition of Rudolph in 1571, which is quite clear upon the point in question: I have not seen it, but there are good descriptions. This same Stifelius had published his own work on algebra in 1544, in which he makes large use of + and —. Did he adopt the signs for himself, and then introduce them into his edition of Rudolph? Or did he take them into his own work from the first edition of Rudolph? Probably the second; but not certainly. Editors had not our notions of their duty to their authors; and it has happened that later editions have had editors' improvements made to pass for authors' original text. And Stifelius was a queer man. He has introduced into this very work of Rudolph his own interpretation of the number of the Beast. He determined to fix the character on Pope Leo: so he picked the numeral letters from *LEODECIMVS*, and by taking in *x*. from *LEO x*. and striking out *M* as standing for *mysterium*, he hit the number exactly. This discovery completed his conversion to Luther, and his determination to throw off his monastic vows. Luther dealt with him as straightforwardly as with Melancthon about his astrology: he accepted the conclusions, but told him to clear his mind of all the premises about the Beast. Stifelius did not take the advice, and proceeded to settle the end of the world out of the prophet Daniel: he fixed on October, 1533. The parishioners of some cure which he held, having full faith, began to spend their savings in all kinds of good eating and drinking; we may charitably hope this was not the way of preparing for the event which their pastor pointed out. They succeeded in making themselves as fit for Heaven as Lazarus, so far as beggary went: but when the time came, and the world lasted on, they wanted to kill their deceiver, and would have done so but for the interference of Luther. I cannot trust so eccentric a man as an editor: I think it possible he may have played up old 666 with Rudolph's text. I should hope some one would examine the manuscript above described, and give me some account of the appearance of + and —, and of the way in which they are used.

I lay no stress on the use of + and —, in the first manner above described. Either Rudolph or Stifelius is, so far as known, the real introducer of these signs, as at present used. That they had the sense to pick out the signs from the *regula falsi*, and generalize their use, instead of inventing something not so good for the greater glory of their own originality, adds greatly to their merit.

A. DE MORGAN.

Derivation of + and —.

Oct. 4th, 1864.

That + was the corruption of *et* was proposed in the *Magazine of Popular Science*, vol. i., p. 191, by the late T. S. Davies. He was also confident that — was the line drawn above the contracted word *mns*. The late Prof. Rigaud suggested for + a corruption of *p*, but did not take the old form of the letter: he also thought that — was but the last form of *m*, very often seen in the final *m* of hurried handwriting in our own day, in which a dash joined to *hi* does duty for *him*. The + being originally not a sign of addition, as I have shown, but of *more*, the *et* must be abandoned. I think the abbreviations of *p* and *m* very probable: in the old *p* the up-stroke and cross-line are prominent, and the loop is a junction. But with them may compete the notion that two strokes were used for *more*, and one for *less*, without any obligation to the alphabet. A great many cases are given in which simple duplication stands for indefinite majority: it was somewhere proposed that, in a personification, eternity should be represented twice as large as time.

A. DE MORGAN.

No. XX. 1851—1854.

1851. The following letter was written by one of a class of persons whom, after much experience of them, I do *not* pronounce insane. But in this case the second sentence gives a suspicion of actual delusion of the senses; the third looks like that eye for the main chance which passes for sanity on the Stock Exchange and elsewhere:—

15th Sept., 1851.

GENTLEMEN,—I pray you take steps to make known that yesterday I completed my invention which will give motion to every country on the Earth;—to move Machinery!—the long sought in vain “Perpetual Motion”!!—I was supported at the time by the Queen and H.R.H. Prince Albert. If, Gentlemen, you can advise me how to proceed to claim the reward, if any is offered by the Government, or how to secure the PATENT for the Machine, or in any way assist me by advice in this great work, I shall most graciously acknowledge your consideration.

These are my convictions that, my SEVERAL discoveries will be realised; and this great one can be at once acted upon: although at this moment it only exists in my mind, from my knowledge of certain fixed principles in nature:—the Machine I have not made, as I only completed the discovery YESTERDAY, Sunday!

I have, &c.,

To the Directors of the London University,
Gower Street.

The Divine Drama of History and Civilisation. By the Rev. James Smith, M.A. London, 1854, 8vo.

I have several books on that great paradox of our day, *spiritualism*, but I shall exclude all but three. The bibliography of this subject is now very large. The question is one both of evidence and speculation;—Are the facts true? Are they caused by spirits? These I shall not enter upon: I shall merely recommend this work as that of a spiritualist who does not enter on the subject, which he takes for granted, but applies his derived views to the history of mankind with learning and thought. Mr. Smith was a man of a very peculiar turn of thinking. He was, when alive, the editor, or *an* editor, of the *Family Herald*: I say when alive, to speak according to knowledge; for, if his own views be true, he may have a hand in it still. The answers to correspondents, in his time, were piquant and original above any I ever saw. I think a very readable book might be made out of them, resembling *Guesses at Truth*: the turn given to an inquiry about morals, religion, or socials, is often of the highest degree of *unexpectedness*; the poor querist would find himself right in a most unpalatable way.

Answers to correspondents, in newspapers, are very often the fag ends of literature. I shall never forget the following. A person was invited to name a rule without exception, if he could: he answered, “A man *must* be present when he is shaved.” A lady—what right have ladies to decide questions about shaving?—said this was not properly a rule; and the oracle was consulted. The editor agreed with the lady; he said that “a man *must* be present when he is shaved” is not a *rule*, but a *fact*.

I cut the following from a Sunday paper in 1849:—

X. Y.—The Chaldeans began the mathematics, in which the Egyptians excelled. Then crossing the sea, by means of Thales, the Milesian, they came into Greece, where they were improved very much by Pythagoras, Anaxagoras, and Anopides of Chios. These were followed by Briso, Antipho, [two circle-squarers; where is Euclid?] and Hippocrates, but the excellence of the algebraic art was begun by Geber, an Arabian astronomer, and was carried on by Cardanus, Tartaglia, Clavius, Stevinus, Ghetaldus, Herigenius, Fran, Van Schooten [meaning Francis Van Schooten], Florida de Beaume, &c.

Quadratura del cerchio, trisezione dell' angolo, et duplicazione del cubo, problemi geometricamente risolte e dimostrate dal Reverendo Arciprete di San Vito D. Domenico Angherà. Malta, 1854, 8vo.

Equazioni geometriche, estralle dalla lettera del Rev. Arciprete . . . al Professore Pulicino sulla quadratura del cerchio. Milan, 1855 or 1856, 8vo.

Il Mediterraneo gazetta di Malta, 26 Decembre, 1855, No. 909: also 911, 912, 913, 914, 936, 939.

The Malta Times, Tuesday, 9th June, 1857.

Misura esatta del cerchio, dal Rev. D. Angherà. Malta, 1857, 12mo.

Quadrature of the circle. . . . by the Rev. D. Angherà, Archpriest of St. Vito. Malta, 1858, 12mo.

I have looked for St. Vitus in catalogues of saints, but never found his legend, though he figures as a day-mark in the oldest almanacs. He must be properly accredited, since he has an archpriest. And I pronounce and ordain, by right accruing from the trouble I have taken in this subject, that he, St. Vitus, who leads his votaries a never-ending and unmeaning dance, shall henceforth be held and taken to be the patron saint of the circle-squarer. His day is the 15th of June, which is also that of St. Modestus, with whom the said circle-squarer often has nothing to do. And he must not put himself under the first saint with a slantendicular reference to the other, as is much to be feared was done by the Cardinal who came to govern England with a title containing St. Pudentiana, who shares a day with *St. Dunstan*. The archpriest of St. Vitus will have it that the square inscribed in a semicircle is half of the semicircle, or the circumference $3\frac{1}{2}$ diameters. He is active and able, with nothing wrong about him except his paradoxes. In the second tract named he has given the testimonials of crowned heads and ministers, &c., as follows. Louis Napoleon gives thanks. The minister at Turin refers it to the Academy of Sciences, and hopes so much labour will be judged *degni di pregio*. The Vice-Chancellor of Oxford—a blunt Englishman—begs to say that the University has never proposed the problem, as some affirm. The Prince Regent of Baden has received the work with lively interest. The Academy of Vienna is not in a position to enter into the question. The Academy of Turin offers the most *distinct* thanks. The Academy della Crusca attends only to literature, but gives thanks. The Queen of Spain has received the work with the highest appreciation. The University of Salamanca gives infinite thanks, and feels true satisfaction in having the book. Lord Palmerson gives thanks, by the hand of “William San.” The Viceroy of Egypt, not being yet up in Italian, will spend his first moments of leisure in studying the book, when it shall have been translated into French: in the mean time he congratulates the author upon his victory over a problem so long held insoluble. All this is seriously published as a rate in aid of demonstration. If these royal compliments cannot make the circumference of a circle about 2 per cent. larger than geometry will have it—which is all that is wanted—no wonder that thrones are shaky.

(*To be continued.*)